PELLISSIPPI STATE TECHNICAL COMMUNITY COLLEGE
MASTER SYLLABUS

FINITE MATHEMATICS
MTH 1230

Class Hours: 3.0   **Credit Hours: 3.0**

Laboratory Hours: 0.0   **Date Revised: Fall
                                                   1999**

Catalog Course Description:

Introduction to functions, interest, annuities, amortization, systems of linear equations including Gauss-Jordan elimination, and matrix theory. Linear programming using graphical and simplex methods.

Entry Level Standards:

Students must be able to read at the college level.

Prerequisites:

Two years of high school algebra and ACT math score of at least 19; or DSM 0840 or equivalent math placement score.

Textbook(s) and Other Reference Materials Basic to the Course:

Required:
Barnett, R.A., Ziegler, M.R., Byleen, K.E. *Finite Mathematics.* 8th ed. Prentice Hall, Upper Saddle River, New Jersey 1998.
References:
Tan, S.T. *Applied Finite Mathematics*, 5th ed. Brooks/Cole Publishing, Pacific Grove, CA, 1997.
Lial, M.L., Greenwell, R.N., and Miller, C.D. *Finite Mathematics,* 6th ed. Addison Wesley, Reading, MA, 1998.
Personal Equipment:
A graphing calculator is required.

I. Week/Unit/Topic Basis:

Week	Topic
1	Introduction to functions; linear functions, 1.1, 1.3.
2	Linear functions; quadratic functions; polynomial and rational functions, 1.3, 1.4, 2.1.
3	Polynomial, rational, exponential, and logarithmic functions, 2.1 - 2.3.
4	Logarithmic functions; review 2.3.

5	Exam 1; simple and compound interest, 3.1, 3.2.
6	Future and present value of annuity; sinking fund; amortization, 3.3, 3.4.
7	Exam 2; systems of linear equations in two variables, 4.1.
8	Introduction to matrices; Gauss-Jordan Elimination; 4.2, 4.3.
9	Matrix algebra; matrix inverse; 4.4, 4.5.
10	Matrix equations; review; 4.6.
11	Exam 3; systems of linear inequalities; linear programming - geometric approach; 5.1, 5.2.
12	Simplex method; maximization; 5.3, 5.4.
13	Minimization; dual; 5.5.
14	Mixed constraints (optional); review; 5.6.
15	Exam 4; review for final
16	Final Exam

II. Course Objectives*:

A. Demonstrate mastery of the algebraic and linear programming skills necessary for success in the technologies. I, II, III

B. Translate verbal situations into algebraic equations. II, III

C. Construct and discuss mathematical models. IV

D. Use the Simplex method to solve maximization or minization problems. I, V

E. Use mathematics to solve business problems and related business applications. IV, V

*Roman numerals after course objectives reference goals of the Mathematics department.

III. Instructional Processes*:

Students will:

1. Use graphing calculator and/or computer software to solve finance problems. *Technological Literacy Outcome, Numerical Literacy Outcome, Active Learning Strategy*

2. Work collaboratively and/or individually to complete laboratory exercises related to real-world business problems such as revenue, profit, break-even analysis, and supply and demand. *Numerical Literacy Outcome, Communication Outcome, Problem Solving and Decision Making Outcome, Transitional Strategy, Active Learning Strategy*

3. Engage in collaborative activities such as modeling projects, presentations, group assignments, and/or other activities involving linear programming. *Numerical Literacy Outcome, Active Learning Strategy*

*Strategies and outcomes listed after instructional processes reference Pellissippi State□s goals for

strengthening general education knowledge and skills, connecting coursework to experiences beyond the classroom, and encouraging students to take active and responsible roles in the educational process.

IV. Expectations for Student Performance*:

Upon successful completion of this course, the student should be able to:

1. Graph systems of linear inequalities. A

2. Algebraically solve systems of equations. A

3. Solve linear programming problems graphically. A, B, C

4. Use basic matrix operations and discover their relationships to systems of   equations. E

5. Use the Gauss-Jordan method to solve linear equations. D

6. Solve and apply the Simplex Method to linear programming problems. A, B, D, E

7. Calculate simple and compound interest. A, E

8. Determine amount of an annuity and the present value of an annuity. A, E

*Letters after performance expectations reference the course objectives listed above.

V. Evaluation:

A. Testing Procedures:

Students are evaluated primarily on the basis of tests, quizzes, homework, labs, other projects possibly assigned by the instructor and the comprehensive final exam. A minimum of 4 major tests is recommended.

B. Laboratory Expectations:

As assigned by instructor

C. Field Work:

As assigned by instructor

D. Other Evaluation Methods:

As assigned by instructor

E. Grading Scale:

93	-	100	A
88	-	92	B+
83	-	87	B
78	-	82	C+
70	-	77	C
60	-	69	D
Below 60			F

VI. Policies:

A. Attendance Policy:

Pellissippi State Technical Community College expects students to attend all scheduled instructional activities. As a minimum, students in all courses must be present for at least 75 percent of their scheduled class and laboratory meetings in order to receive credit for the course. Individual departments/programs/disciplines, with the approval of the vice president of Academic and Student Affairs, may have requirements that are more stringent.

B. Academic Dishonesty:

Individual instructors must distribute their policy on academic dishonesty during the first week of class.